

Release notes for ENDF/B Development n-063\_Eu\_156  
evaluation

**ENDF**  
**B-VII**.dev

April 26, 2017

- checkr Warnings:

1. A previous error halted parsing of the current section  
*MAT=6340, MF= 1, MT=451 (1): Parsing stopped*

```
ERROR(S) FOUND IN MAT=6340, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      211 TO      253
```

- checkr Errors:

1. A variable is outside the allowed ENDF range  
*MAT=6340, MF= 1, MT=451 (0): Variable range*

```
ERROR(S) FOUND IN MAT=6340, MF= 1, MT=451
MOD =      1 OUT OF RANGE      0 -      0      RECORD NUMBER      211
```

2. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 2, MT=151 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=6340, MF= 2, MT=151
SECTION 2/151 NOT IN DIRECTORY      RECORD NUMBER      255
```

3. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 1 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 1
SECTION 3/ 1 NOT IN DIRECTORY      RECORD NUMBER      414
```

4. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 2 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 2
SECTION 3/ 2 NOT IN DIRECTORY      RECORD NUMBER      443
```

5. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 4 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 4
SECTION 3/ 4 NOT IN DIRECTORY      RECORD NUMBER      468
```

6. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 16 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 16
SECTION 3/ 16 NOT IN DIRECTORY      RECORD NUMBER      485
```

7. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 17 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 17  
SECTION 3/ 17 NOT IN DIRECTORY RECORD NUMBER 497

8. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 22 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 22  
SECTION 3/ 22 NOT IN DIRECTORY RECORD NUMBER 504

9. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 28 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 28  
SECTION 3/ 28 NOT IN DIRECTORY RECORD NUMBER 518

10. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 32 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 32  
SECTION 3/ 32 NOT IN DIRECTORY RECORD NUMBER 529

11. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 33 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 33  
SECTION 3/ 33 NOT IN DIRECTORY RECORD NUMBER 538

12. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 51 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 51  
SECTION 3/ 51 NOT IN DIRECTORY RECORD NUMBER 546

13. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 52 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 52  
SECTION 3/ 52 NOT IN DIRECTORY RECORD NUMBER 563

14. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 53 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 53  
SECTION 3/ 53 NOT IN DIRECTORY RECORD NUMBER 579

15. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 54 (0): Directory (b)*

- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 54 | RECORD NUMBER | 594 |
| SECTION 3/ 54 NOT IN DIRECTORY            |               |     |
16. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 55 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 55 | RECORD NUMBER | 608 |
| SECTION 3/ 55 NOT IN DIRECTORY            |               |     |
17. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT= 91 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT= 91 | RECORD NUMBER | 621 |
| SECTION 3/ 91 NOT IN DIRECTORY            |               |     |
18. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT=102 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT=102 | RECORD NUMBER | 633 |
| SECTION 3/102 NOT IN DIRECTORY            |               |     |
19. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT=103 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT=103 | RECORD NUMBER | 653 |
| SECTION 3/103 NOT IN DIRECTORY            |               |     |
20. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT=104 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT=104 | RECORD NUMBER | 669 |
| SECTION 3/104 NOT IN DIRECTORY            |               |     |
21. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT=105 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT=105 | RECORD NUMBER | 682 |
| SECTION 3/105 NOT IN DIRECTORY            |               |     |
22. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 3, MT=107 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 3, MT=107 | RECORD NUMBER | 695 |
| SECTION 3/107 NOT IN DIRECTORY            |               |     |
23. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 2 (0): Directory (b)*

- |  |  |                   |
|--|--|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 2 |                   |
|  | SECTION 4/ 2 NOT IN DIRECTORY            | RECORD NUMBER 712 |
24. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 16 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 16 |                   |
|  | SECTION 4/ 16 NOT IN DIRECTORY            | RECORD NUMBER 871 |
25. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 17 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 17 |                   |
|  | SECTION 4/ 17 NOT IN DIRECTORY            | RECORD NUMBER 882 |
26. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 22 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 22 |                   |
|  | SECTION 4/ 22 NOT IN DIRECTORY            | RECORD NUMBER 893 |
27. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 28 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 28 |                   |
|  | SECTION 4/ 28 NOT IN DIRECTORY            | RECORD NUMBER 904 |
28. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 32 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 32 |                   |
|  | SECTION 4/ 32 NOT IN DIRECTORY            | RECORD NUMBER 915 |
29. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 33 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 33 |                   |
|  | SECTION 4/ 33 NOT IN DIRECTORY            | RECORD NUMBER 926 |
30. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 51 (0): Directory (b)*
- |  |   |                   |
|--|---|-------------------|
|  | ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 51 |                   |
|  | SECTION 4/ 51 NOT IN DIRECTORY            | RECORD NUMBER 937 |
31. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 52 (0): Directory (b)*

- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 52 | RECORD NUMBER | 965 |
| SECTION 4/ 52 NOT IN DIRECTORY            |               |     |
32. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 53 (0): Directory (b)*
- |   |               |     |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 53 | RECORD NUMBER | 993 |
| SECTION 4/ 53 NOT IN DIRECTORY            |               |     |
33. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 54 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 54 | RECORD NUMBER | 1021 |
| SECTION 4/ 54 NOT IN DIRECTORY            |               |      |
34. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 55 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 55 | RECORD NUMBER | 1049 |
| SECTION 4/ 55 NOT IN DIRECTORY            |               |      |
35. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 4, MT= 91 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6340, MF= 4, MT= 91 | RECORD NUMBER | 1077 |
| SECTION 4/ 91 NOT IN DIRECTORY            |               |      |
36. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 16 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 16 | RECORD NUMBER | 1106 |
| SECTION 5/ 16 NOT IN DIRECTORY            |               |      |
37. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 17 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 17 | RECORD NUMBER | 1187 |
| SECTION 5/ 17 NOT IN DIRECTORY            |               |      |
38. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 22 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 22 | RECORD NUMBER | 1221 |
| SECTION 5/ 22 NOT IN DIRECTORY            |               |      |
39. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 28 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 28  
SECTION 5/ 28 NOT IN DIRECTORY RECORD NUMBER 1468

40. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 32 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 32  
SECTION 5/ 32 NOT IN DIRECTORY RECORD NUMBER 1590

41. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 33 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 33  
SECTION 5/ 33 NOT IN DIRECTORY RECORD NUMBER 1655

42. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=6340, MF= 5, MT= 91 (0): Directory (b)*

ERROR(S) FOUND IN MAT=6340, MF= 5, MT= 91  
SECTION 5/ 91 NOT IN DIRECTORY RECORD NUMBER 1699

- **psyche** Warnings:

1. Non-threshold reaction with Q value differing from PSYCHE's expectations  
*FILE 3 / SECTION 103 / THE CALCULATED Q 5.46364E+05 DISSAGREES WITH THE GIVEN Q 6.74684E+04 (0): Iffy Q*

FILE 3  
SECTION 103  
THE CALCULATED Q 5.46364E+05 DISSAGREES WITH THE GIVEN Q 6.74684E+04

- **recent** Warnings:

1. Fission widths given for non-fissile nucleus, but are zero  
*0: Fission?*

Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)  
=====

Retrieval Criteria-----	MAT
File 2 Minimum Cross Section-	1.0000E-10 (Standard Option)
Reactions with No Background-	Output (Resonance Contribution)
... [333 more lines]	

- **fudge-4.0** Warnings:

1. The URR for this spin group needs higher energy resolution for correct representation of the average cross section  
*resonances / unresolved (Error # 0): URRinsufficientEnergyGrid*

WARNING: More points needed in L=0 J=0.5 unresolved widths between 1. eV and 10. eV  
WARNING: More points needed in L=0 J=0.5 unresolved widths between 10. eV and 1.e2 eV  
WARNING: More points needed in L=1 J=0.5 unresolved widths between 1. eV and 10. eV  
WARNING: More points needed in L=1 J=0.5 unresolved widths between 10. eV and 1.e2 eV  
... plus 6 more instances of this message

2. Cross section does not match sum of linked reaction cross sections  
*crossSectionSum label 0: total (Error # 0): CS Sum.*

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.97%

• fudge-4.0 Errors:

1. Calculated and tabulated Q values disagree.  
*reaction label 7:  $n[multiplicity:2'] + Eu155$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -6606319.791320801 eV vs -6.3341e6 eV!

2. Calculated and tabulated Q values disagree.  
*reaction label 8:  $n[multiplicity:3'] + Eu154$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -14757724.28445435 eV vs -1.45092e7 eV!

3. Calculated and tabulated Q values disagree.  
*reaction label 9:  $n + H1 + Sm155$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -7451201.034759521 eV vs -7180630. eV!

4. Calculated and tabulated Q values disagree.  
*reaction label 10:  $n + H2 + Sm154$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -11033594.66238403 eV vs -1.06886e7 eV!

5. Calculated and tabulated Q values disagree.  
*reaction label 11:  $n + H3 + Sm153$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -12743429.13195801 eV vs -1.24766e7 eV!

6. Calculated and tabulated Q values disagree.  
*reaction label 12:  $Eu157 + gamma$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: 7179274.64050293 eV vs 7453390. eV!

7. Calculated and tabulated Q values disagree.  
*reaction label 13:  $n + He4 + Pm152$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -1522107.36505127 eV vs -1.2149e6 eV!

8. Calculated and tabulated Q values disagree.  
*reaction label 14:  $H1 + Sm156.s$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -206795.089630127 eV vs 67468.39999999999 eV!

9. Calculated and tabulated Q values disagree.  
*reaction label 15:  $H2 + Sm155.s$  (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -5226634.933837891 eV vs -4870510. eV!

10. Calculated and tabulated Q values disagree.  
*reaction label 16:  $H3 + Sm154.s$  (Error # 0): Q mismatch*



WARNING: Calculated and tabulated Q-values disagree: -4776361.72177124 eV vs -4503460. eV!

11. Calculated and tabulated Q values disagree.  
*reaction label 17: He4 + Pm153\_s (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: 5971596.194824219 eV vs 6.3312e6 eV!

• njoy2012 Warnings:

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*group...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 16  
only mf4/mf5 provided

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*group...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 17  
only mf4/mf5 provided

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*group...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 22  
only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*group...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 28  
only mf4/mf5 provided

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*group...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 32  
only mf4/mf5 provided

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*groupr...compute self-shielded group-averaged cross-sections (5): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 33  
only mf4/mf5 provided

7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!  
*groupr...compute self-shielded group-averaged cross-sections (6): GROUPR/conver (0)*

---message from conver---cannot do complete particle production for mt= 91  
only mf4/mf5 provided